

REMARKS

Claims 1-18 are pending in this application. Claims 1-5 and 10-14 stand rejected and claims 6-9 and 15-18 are objected to. Applicants wish to thank the Examiner for the indication of allowable subject matter in claims 6-9 and 15-18 but refrain from rewriting these claims in independent form until final resolution on the claims from which they depend. By this Amendment, claims 1, 5, and 10 have been amended. The amendments made to the claims do not alter the scope of these claims, nor have these amendments been made to define over the prior art. Rather, the amendments to the claims have been made for cosmetic reasons to improve the form thereof. In light of the amendments and remarks set forth below, Applicants respectfully submit that each of the pending claims is in immediate condition for allowance.

Claims 1-3 and 10-12 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 5,978,407 ("Chang"). Applicants respectfully request reconsideration and withdrawal of this rejection.

To anticipate a claim under 35 U.S.C. § 102, the cited reference must disclose every element of the claim, as arranged in the claim, and in sufficient detail to enable one skilled in the art to make and use the anticipated subject matter. See, PPG Industries, Inc. v. Guardian Industries Corp., 75 F.3d 1558, 1566 (Fed. Cir. 1996); C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1349 (Fed. Cir. 1998). A reference that does not expressly disclose all of the elements of a claimed invention cannot anticipate unless all of the undisclosed elements are inherently present in the reference. See, Continental Can Co. USA v. Monsanto Co., 942 F.2d 1264, 1268 (Fed. Cir. 1991).

Among the limitations of independent claims 1 and 10 not present in Chang is that "said cooling tube is provided with an antireflective area for pumping light on a portion of an outer surface thereof and with a high reflective area for the pumping light on another portion of the outer surface on which said antireflection area is absent."

Applicants respectfully submit that Chang fails to disclose the claimed cooling tube. The optional cooling tube in Chang is shown in Figure 2. The optional flow tube is used to cool the laser rod. Alternatively, the pump chamber can also be flooded with water with the elimination of the flow tube. The space outside the flow tube may be filled with water, an index matching fluid, or air depending on various design goals. However, it should be noted that Chang fails to disclose that the cooling tube is provided with both an antireflective area and a high reflection area.

The Office Action asserts that the antireflection area is shown in Figure 2 as element 24 and discussed at column 3, lines 44-45. However, item 24 in Figure 2 is a slot in the coupling structure. The cited portion of Chang discusses the fact that concentric light channels 24 are on the sides of the coupling structure.

Additionally, there is no disclosure in Chang that the cooling tube has an area where the antireflection coating is absent. Although the Office Action asserts that this is taught at column 4, lines 63-67, the cited portion of Chang discloses that the curved inner surface 18 and curved side surface 22 of the coupling structure are reflectively coated. These curved surfaces relate to the sides of the channels and are not the cooling tube explicitly recited in Applicants' claims. Therefore, Applicants' respectfully submit that claims 1 and 10 which recite more identical elements, is not anticipated by Chang.

Additionally, Applicant notes that in Chang, light of laser diode 30 is transmitted to the laser rod 34 through the light concentration channel 24 using a side-pumping method. In this case, the light concentration channel 24 is air, glass, or the like. The antireflective area, high-reflective area, and diffusion area are formed in the light concentration channel 24 and the segment 12. This uses the same technique as in the condenser lens and the holding mechanism for the same in the prior art recited in the specification of the present invention, and this poses a problem in that an increase in the number of parts increases the cost and complexity.

In contrast, according to the present invention, an antireflection coating and a high reflection area are directly provided on the water jacket, and laser diode light is directly presented into the laser rod (without passing through a space propagation path or an optical propagating part). In addition, according to the present invention, in axis-shifting pumping into the rod, laser diode light is also directly led into the laser rod (without passing through a space propagation path or an optical propagating part) while shifting the rod center axis.

Claims 2-3 depend either directly or indirectly from, and contain all the limitations of claim 1. These dependent claims also recite additional limitations which, in combination with the limitations of claim 1, are neither disclosed nor suggested by Chang and are also believed to be directed towards the patentable subject matter. Thus, claims 2-3 should also be allowed.

Claims 11-12 depend either directly or indirectly from, and contain all the limitations of claim 10. These dependent claims also recite additional limitations which, in combination with the limitations of claim 10, are neither disclosed nor suggested by Chang and are also believed to be directed towards the patentable subject matter. Thus, claims 11-12 should also be allowed.

Claims 5 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art (Figure 1). Applicants respectfully request reconsideration and withdrawal of this rejection.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or combine references to arrive at the claimed subject matter. The prior art references must also teach or suggest all the limitations of the claim in question. See, M.P.E.P. § 706.02(j). A reference can only be used for what it clearly discloses or suggests. See, In re

Hummer, 113 U.S.P.Q. 66 (C.C.P.A. 1957); In re Stencel, 4 U.S.P.Q.2d 1071, 1073 (Fed. Cir. 1987). Here, the references, whether taken individually or in combination, do not disclose or suggest the invention claimed by the Applicants.

Among the limitations of dependent claims 11-14 not present in the reference is the claimed cooling tube having an antireflection area and a high reflection area. However, it should be noted that in Applicants' Admitted Prior Art, the cooling tube is not coated. Thus, one would not be motivated to change the Admitted Prior Art to coat the cooling tube as explicitly recited in Applicants' claims. Therefore, Applicants respectfully submit that claims 5 and 14 are allowable over the Admitted Prior Art.

Further, the Office Action points out that the present invention had been easily achieved since the antireflection coating 17 was provided at equal intervals along the circumferential direction of the cooling tube 3 and was surrounded by the diffusion reflecting mirror 15 in the Fig. 1 (prior art). However, in the prior art, the diffusion reflecting mirror surface does not exist on the inner surface of the cooling tube although it does exist on the inner surface of the diffusion reflecting mirror block 15. The present invention is focused to efficiently form the antireflective area, high reflection area, and diffuse area on the cooling tube 3 to obtain a high-output and high-quality laser with a simplified mechanism, and is characterized in that all of the antireflection area, high reflection area, and diffuse area are provided on the cooling tube. This is significantly different from the technique described as prior art.

Applicant has responded to all of the rejections and objections recited in the Office Action. Reconsideration and a Notice of Allowance for all of the pending claims are therefore respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is

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respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

If the Examiner believes an interview would be of assistance, the Examiner is welcome to contact the undersigned at the number listed below.

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Respectfully submitted,

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